

Do's and Don'ts of Process Improvement

Pat O'Toole, PACT
www.PACTCMMI.com

September, 2009

Frequent Themes at SPI Conferences

Secure Senior Management Sponsorship

Treat SPI like a Project

Engage Internal Staff.

OK, what now?

Yeah, but what do we **DO**?

And is there anything we should **AVOID** doing?

Caveat

Weinberg's Organizational Dichotomy

- No two organizations are entirely the same
- No two organizations are completely different

Weinberg's Law of Raspberry Jam

- The broader you spread it, the thinner it gets
- This tutorial covers 15 specific **Do's** and **Don'ts**
- Hope for about a 20% “raspberry jam” rate
- The rest are intended for “a friend of yours.”

Do's and Don'ts

Senior Management

CMMI

Process

Measurement.

Do's and Don'ts: Senior Management

“Sponsorship” is nice,
Proactive Leadership is better!

Don't Treat the Level as the Goal

Do Establish “Alignment Principle”

Do Take Time Getting Faster

Don't Let the Dip Get You Down

Do Align the Reward System

Don't Treat the Level as the Goal - 1

What are you really trying to achieve?

- What is the business imperative?
- Why aren't your customers **THRILLED** with your products and services?
- Why do potential customers keep buying your competitor's products?

Which would be better:

- Achieve Level 2, but **NOT** the business objectives
- Achieve the business objectives, but **NOT** Level 2?

So what's the REAL goal?

Don't Treat the Level as the Goal - 2

Maximize the VALUE, not the LEVEL!

- **Problem:** Focusing on the level establishes conflict between the SPI project and the engineering projects
- **Solution:** Focusing on the business imperative produces harmony

Well, at least it reduces the conflict!

Lends credibility to the SPI program

Changes discussion from "if" to "how."

Do Establish “Alignment Principle” - 1

First Rule of Project Management:

- Faster, Better, Cheaper – pick two
- The third will be the independent variable

First rule of process improvement:

Faster, Better, Cheaper - pick ONE!

- If you could improve in only 1 area, which would it be?
Which “number one priority” is really on top?
Remember Deming’s “constancy of purpose”?

Do Establish “Alignment Principle” - 2

Medtronic Example:

- “Achieve an annual, sustainable 10% reduction in field reported defects without degrading current levels of cost, schedule, and functional variance”

Align business, project, and SPI goals

- SPI becomes “Software/System Project Improvement”

Communicate this broadly

Focus with a passion!

Do Take Time Getting Faster - 1

Recognize the tune of the ritualistic dance

Why would your customer believe 6 months when they don't believe 8?

- Do YOU believe it?
- Have you seen the plan?
- Is it credible?
- Remember: A wish is NOT a plan!

How will the troops respond to this goal?

Do Take Time Getting Faster - 2

Despite what they SAY, most customers WANT predictability - they want to believe

- Applies equally well to:
 - Internal customers (Product Mgt / Marketing)
 - External customers

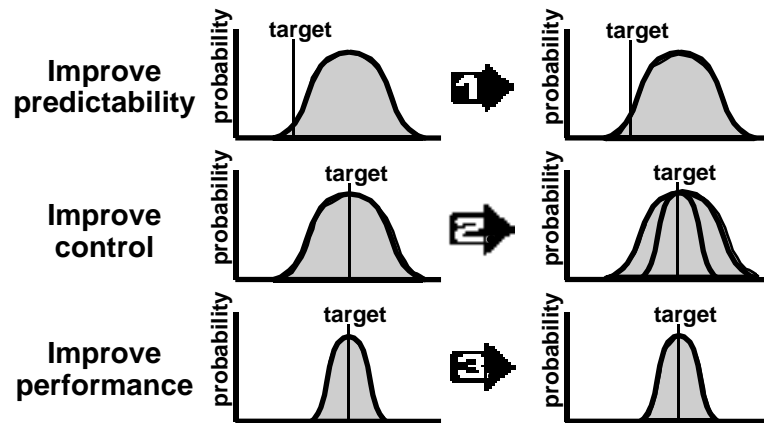
Prerequisite to getting faster:

Enhance the credibility of your current estimates!

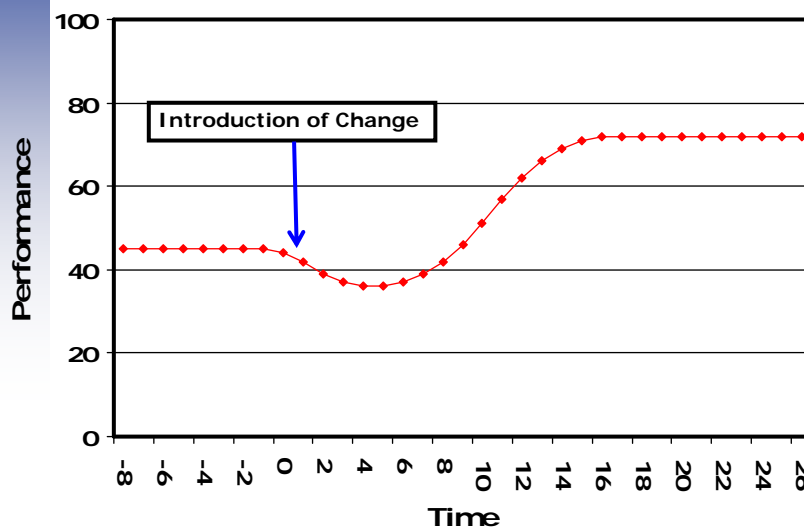
- The troops want to be believed
- It's a matter of professional integrity

Change the tune of the ritualistic dance

Improving Capability



Don't Let the Dip Get You Down - 1



Don't Let the Dip Get You Down - 2

Attributes that affect length/breadth of the “dip:”

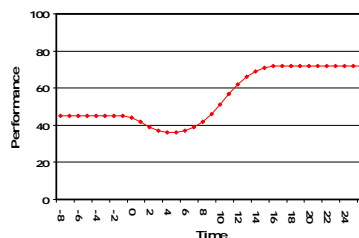
- Recognition of the need to change
- Organizational change culture
- Cultural fit of the changes being introduced
- Compelling evidence of the benefit of these changes
- Size of the target audience
- Perception of cumulative changes
- Change saturation point of the target audience
- Duration since the last change in same general area
- Visibility/believability of management support for the change.

Don't Let the Dip Get You Down - 3

Not all resistance is irrational!

- Some changes do more harm than good
- Don't confuse “change” or “activity” with “progress”

The REAL trick is knowing the difference!



Do Align the Reward System - 1

What behavior do you reward today?

- Who received the last few achievement awards?
- Why did they receive them?
- Why do people *perceive* they received them?
Perception is reality to the perceiver
- Are the reward system and the Alignment Principle aligned?

Do Align the Reward System - 2

The behavior you reward is the behavior you get

- Stop rewarding process arson and fire fighting
- Start rewarding disciplined planning & execution

Not all rewards are monetary

- Atta-boys
- Success stories published
- Executive recognition
- Promotions

But money's nice too!



Do's and Don'ts: CMMI

**“All models are wrong;
some models are useful”**

Don't Treat the CMMI as the Bible

Don't Train the Masses on CMMI

Do Become a Stronger Level 1

Don't Use the Continuous Representation

Don't Use the Staged Representation

Don't Treat the CMMI as the Bible - 1

**Does Watts really look that much
like Moses?**

- The CMMI is a good book but it's not THE good book!
- 1000+ suggested changes submitted



It's just a model!

- Goals - sound engineering/management principles
- Practices - one way to accomplish the goals
- Subpractices - insight into the practices.

Don't Treat the CMMI as the Bible - 2

Don't have one policy per process area!

- Apply the CMMI with your brain in “ON” position
- Consider policies for:
 - Project Management Stuff
 - Engineering Stuff
 - Process Stuff
- Write the policy LAST

Look elsewhere for additional guidance

- IEEE standards, ITIL, ISO, Baldrige
- Books, periodicals, employees, Dilbert, etc.

Don't Train the Masses on CMMI - 1

Have you heard the expressions:

- Here we go again?
- The next silver bullet?
- Yet another flavor of the month?
- This too shall pass?

Have you ever read the CMMI stuff like a novice?

- “Technical data package”?
- “Organizational Process Focus”??
- “Instantiation”???
- “Constellation”????

Don't Train the Masses on CMMI - 2

What should you do?

- Train the SEPG on the CMMI
- Train Process Action Teams on relevant portions
- Train the unwashed masses on their processes
And **DON'T** call it “the CMMI process!”
- Consider providing CMMI orientation after:
Initial value has been proven and momentum established
People start asking how you got so smart

Translate CMMese into local jargon

- In order to influence behavior,
people have to understand it!

Do Become a Stronger Level 1 - 1

How many Process Action Team do you have?

- Do you have one PAT for each of the Level 2 PAs?
Is your “process pain” equally distributed?
Can projects absorb all of these concurrent changes?

Are you treating the projects as *your customers*?

- Are they actively involved in establishing SPI
requirements and priorities?

Do Become a Stronger Level 1 - 2

Treat every level, even level 1, as a continuum

- Improve in a few areas to gain experience, credibility, momentum, and process discipline
- Provide one or two improvements per target audience
- It's OK to improve in non-CMMI areas

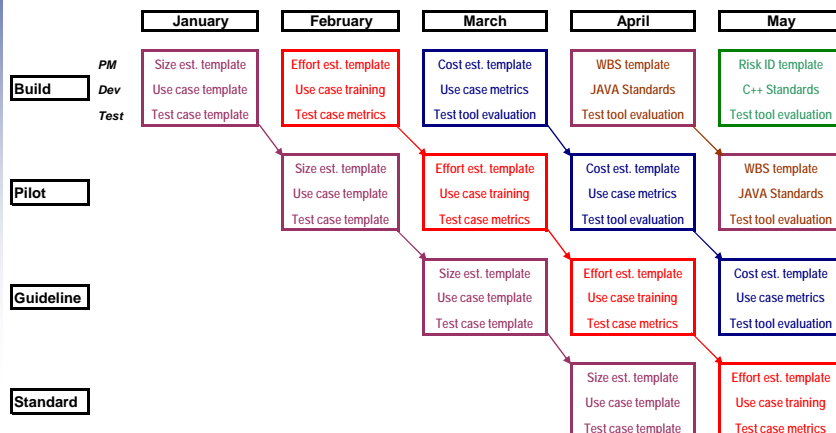
Pilot changes to get it “righter”

- Not every change is an improvement
- Not every improvement will be initially embraced

If you build it, they might not come!

**It's the education, not the degree,
that makes you smarter.**

Do Become a Stronger Level 1 - 3



Don't Use the Staged Representation **Don't Use the Continuous Representation**

Staged representation

- Prescribed ordering with proven results
- Organizational change model

Continuous Representation

- Feel the pain/fix the pain
- More granular level of information
- Encouragement to consider quantitative management in any/all process areas

Don't use *either* – **Do** use *both*.

Maturity Level 2 Example

	Staged at Maturity Level	1/1/08 Mini Appraisal	1Q08 Plan	2Q08 Plan Act	3Q08 Plan	4Q08 Plan Act
Project Mgt:						
PP	2	2	2	2	2	2
PMC	2	1	1	2	2	2
SAM	2	0	1	1	2	2
Engineering:						
REQM	2	1	2	2	2	2
Support:						
CM	2	2	2	2	2	2
PPQA	2	2	2	2	2	2
MA	2	0	0	1	1	2

Maturity Level 3 Example

	Staged at Maturity Level	1/1/08 Mini Appraisal	1Q08 Plan	2Q08 Plan Act	3Q08 Plan	4Q08 Plan Act	1Q09 Plan	2Q09 Plan Act	3Q09 Plan	4Q09 Plan Act
Process Mgt										
OPF	3	1	1	2	2	2	2	3	3	3
OPD	3	0	1	1	1	2	2	2	3	3
OT	3	1	1	1	1	2	2	2	3	3
Project Mgt										
PP	2	2	2	2	3	3	3	3	3	3
PMC	2	1	1	2	2	2	3	3	3	3
SAM	2	0	1	1	2	2	2	3	3	3
IPM	3	0	0	0	0	1	1	1	2	3
RSKM	3	1	1	1	1	1	1	2	2	3
Engineering										
REQM	2	1	2	2	2	2	3	3	3	3
RD	3	1	2	2	2	2	2	3	3	3
TS	3	1	1	1	1	1	1	2	2	3
PI	3	1	1	1	1	1	2	2	2	3
VER	3	1	1	1	1	1	2	2	3	3
VAL	3	0	0	1	1	1	2	2	3	3
Support:										
CM	2	2	2	2	2	2	3	3	3	3
PPQA	2	2	2	2	3	3	3	3	3	3
MA	2	0	0	1	2	2	2	2	3	3
DAR	3	0	0	0	1	1	1	2	2	3

Do's and Don'ts: Process

It's NOT the process documentation, Stupid!

Don't Over-Engineer Processes

Don't Over-Engineer Processes - 1

The "accordion effect" may be unavoidable

- Start with very little process documentation in place
- Develop 4 big honkin' binders
- It becomes shelfware
- Devolve RDC versions
 - “Decomplexification.”
- TRY to do it right the first time

Preflight checklist

Think “Thin to win!”

Experienced practitioner's cheat sheet

PPQA/PPQA's review checklist.

Don't Over-Engineer Processes - 2

**Process documentation vs.
Procedures/work instructions vs.
Training material**

Don't give Process Action Teams too much time

- Parkinson's Law is sure to creep in
- Have "good case examples" for guidance

Use 4 roles to develop process documentation:

- Facilitator (SEPG)
- Content providers (process executors)
- Scribe (technical writer)
- Reviewers (other process executors).

Do's and Don'ts: Measurement

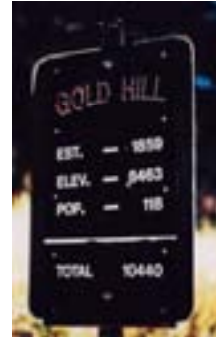
**“In God we trust,
all others bring data”**

Do Employ Basic Measures NOW!

Do Enhance Data Integrity

Do Study Math for ML4 and ML5

Do Expect BS at ML4 and ML5



Picture by Bill Riddle
(Used with permission)

Do Employ Basic Measures NOW! - 1

You don't have a current baseline?

- Start now or you'll be saying the same thing in 2 years
- Do you remember saying it 2 years ago?!

What to measure?

- Look to
 - The Alignment Principle
 - The goals of the process improvement program
- Defects, effort, schedule.

Do Employ Basic Measures NOW! - 2

There is no physics in software

- You can't say, "It can't be done"
- You should be able to say, "We can't do it"
- "But here's what we can do..."

Management's gut is bigger than yours every time!

- Schwartz's Law:

"Gut size and estimates are inversely proportional."

Do Enhance Data Integrity

Track actuals at the same level you estimate

- Don't throw darts in the dark
- Track actuals to motivate corrective action

Providers of data must be consumers of the data

- WIIFM?

Adopt Grady's Rules of Data Etiquette

- Private vs. public data
- Don't misuse the data.

Do Study Math for ML4 and ML5

ML4 establishes and exploits stable processes

- It's the only level that's NOT about improvement
- It's about understanding your capability and performing that way consistently

Process performance baselines

- Established based on historical performance data
- “If you always do what you’ve always done,
You will always get what you’ve always gotten”

Process performance models

- Think about Alan Greenspan...
- Use leading indicator data to predict the future value (or range of values) of a related variable of interest

Do Expect BS at ML4 and ML5

<Content Not Included>

Questions?

Pat O'Toole

Process Assessment, Consulting & Training

952-432-0693

PACT.otoole@att.net

www.PACTCMMI.com